

# Eating Disorders: No Longer Trapped by Food

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## Abstract

*The purpose of this study was to document disordered eating patterns and prevalence rates to assess the current extent of the problem among college students. The Undergraduate Student Health Risk Appraisal Survey, with a Disordered Eating Subscale, generated such information. A randomized stratified study (n=320) of students at a major university ascertained disordered eating patterns, documented diagnosed eating disorders, and correlated body perceptions with calculated Body Mass Index. Surprisingly low prevalence rates were found: <2% anorexic, <1% bulimic and 2.8% exhibiting disordered eating patterns. These data lead the researchers to challenge the current belief of widespread disordered eating patterns among college students.*

## Introduction

Disordered eating patterns have existed on some level for centuries (Bemporad, 1996), but the research indicates an increase in this phenomena in the latter part of the 20th century, especially in the early 1980's (Hawkins, Fremouw, and Clement, 1983). Young adolescent and college females have been considered one of the highest risk categories. Some authors believe that early studies regarding eating disorder prevalence contained flawed methodology (Fairburn and Belgin, 1990; Crowther, Wolf, and Sherwood, 1992) and, consequently, produced a wide range of estimates for young adult women. Some reported 5 percent to 90 percent with eating disorder symptoms (Bemporad, 1996), while others focused on bulimia nervosa, reporting 8 to 19 percent of university women being affected (Pyle, Halvorson, Neuman, and Mitchell, 1986; Halmi, Falk, and Schwartz, 1981). Although later studies with more stringent guidelines and sampling methods have actually indicated the prevalence of bulimia to be less than 5 percent and probably closer to 1-2 percent (Drewnowski, Yee, and Krahn, 1988; Schotte and Stunkard, 1987), some research still reports extremely high estimates--claiming bulimia to be as high as 20 percent among college populations (Kessler, Gilham, and Vickers, 1992) and stating that over 90 percent of college women having symptoms of binge eating (Streigel-Moore, Silberstein, Frensch, and Rodin, 1989).

Many recent studies are showing an increase in disordered eating patterns (Eagles, Johnston, Hunter, Lobban, and Millar, 1995; Hoek, et al., 1995) while one study has shown a decrease in the past ten years. This study indicated a drop in bulimia nervosa from

7.2 percent to 5.1 percent for women and 1.1 percent to .4 percent for men. In addition, there were significant declines in almost all measures regarding problematic eating behaviors, and disordered attitudes about body, weight and shape (Heatherton, Nichols, Mahamedi and Keel, 1995). Although not a comparison study, the most recent national comprehensive study of college students also revealed lower percentages for disordered eating behaviors. To lose weight or prevent weight gain, 2.6% of the college students surveyed had either vomited or taken laxatives in the last thirty days and 4.3% had taken diet pills in the last thirty days (Centers for Disease Control and Prevention, 1997).

Some subpopulations of the university community are considered at higher risk for disordered eating patterns than others, namely female athletes and women in sororities. The evidence supporting this idea, however, is discrepant. Some evidence exists that athletes' preoccupation with body size and eating patterns are in direct correlation with their involvement in a lean body type sport (such as swimming or gymnastics) versus a sport that improved performance does not require such a physique (Sungot-Borgen, 1994; Beals and Manore, 1994; Davis and Cowles, 1989). Conversely, other studies show no difference between lean-sport athletes, regular athletes, and non-athletes. (Ahsley, Smith, Robinson, and Richardson, 1996; Warren, Stranton, and Blessing, 1990). Meilman, van Hippel and Gaylor's and Crandall's studies (as cited in Schulken, et al., 1997) examining sororities, disordered eating and dissatisfied body image have shown some relation between these three components. However, this issue have not been extensively studied and has been considered a serious

omission given the large percentage of women involved in the Greek system (Schulken, et al., 1997). Another factor affecting disordered eating patterns is ethnicity. Hispanic American females typically present an equal number of disordered eating patterns compared to Caucasian Americans (Crago, Shisslak, and Estes, 1996); whereas, Black American females usually have a lower body dissatisfaction and fewer disordered eating patterns than Caucasians (Ashley, et al., 1996, Crago, et al. 1996). Some researches have found that black women and girls often consider large body types attractive, discuss beauty in terms other than physical (Flynn and Fitzgibbon, 1996) and have more flexible ideals about attractiveness (Parker, et al., 1995).

With the abundance of conflicting data concerning prevalence rates, this study sought to determine the disordered eating habits of the specified population. In addition, the participants' perceptions about their body shapes were explored. With the results of this study, the researchers plan to develop more effective prevention and intervention programs concerning eating disorders and body image for this population.

## **Procedures**

The study used a quantitative, one-shot case study research design. The purpose of this study was to document disordered eating patterns and prevalence rates to accurately assess the extent of the problem and compare prevalence rates of this specific population to national averages. The Boynton Health Service Student Health Survey (Meath, 1996) was adapted to create the *GSU Undergraduate Student Health Risk Appraisal Survey*. The instrument consisted of 98 total questions. The Disordered Eating Subscale consisted of 19 total questions: 11 self-reported behaviors, 3 perception questions, 1 calculated variable (BMI) and 4 demographic determinants.

In Winter Quarter 1997, a survey was administered to undergraduate college students at a major university in the Southeastern United States. A systematic probability sampling technique for this study involved a randomized stratified sample of college students. Total number of participants was 320. Sample size was determined by minimum sample size to test for level of significance determined by population parameter (Issac & Micheal, 1993).

Randomized stratification was achieved by systematic sampling of a cross section of intact undergraduate classes currently enrolled at the

university. Institutional Review Board (IRB) granted approval of the study contingent on strict adherence to maintaining participants' anonymity. Some questions elicited information on activities that could be self-incriminatory, thus professors were not allowed to view documents and surveys were destroyed upon completion of data analysis. Representatives of the Health Education Office visited the randomly generated courses, distributed the surveys with envelopes to participants and collected the sealed completed instruments. Instrument completion time ranged from 12-15 minutes. Body Mass Index (BMI) was subsequently calculated by the researchers from self-reported data of height and weight.

## **Validity and Reliability**

The *GSU Undergraduate Student Health Risk Appraisal Survey* was piloted tested in Winter Quarter 1997 (n=50) among like students in an environment that would match study conditions (for copies of the instrument, please contact Sara Oswalt or Helen Welle-Graf). Consensual content validity was obtained through a panel of experts and the pilot study. The series of questions and checklists were demonstrated to accurately measure behavioral patterns and perception of this population. Reliability for this study was ascertained by calculating Cronbach Alpha. Cronbach Alpha determines internal consistency of an instrument and should be minimally 0.60. (Sarvela & McDermott, 1993). The Cronbach Alpha for this instrument was 0.7341, which is considered adequate.

## **Results**

Table 1 depicts frequencies and percentages for demographic variables represented in this survey. Statistics revealed that participants of the study were representative of the students attending the institution. The majority of the participants were female (n=183, 59.4%) and Caucasian (n=216, 70.4%). A relatively even distribution among class ranking was realized: freshman (n=65, 21.2%), sophomore (n=96, 31.3%), junior (n=86, 28.0%) and seniors (n=58, 18.9%). The mean age of participants was 20.98 years old, ranging from 17 to 47 years.

The survey was designed to elicit four types of information in a self-report manner: (1) previously diagnosed illnesses, (2) behavioral disordered eating patterns, (3) pictorial body typology perception assessment and (4) demographics. Statistical analysis reported frequency data and rates for the following five components of the Disordered Eating Subscale : (1)

laxative use, (2) diet pills, (3) binge eating, (4) induced vomiting, and (5) fasting greater than 24 hours. Five point graduated response options were provided to the participant (*never, 1-6 times per year, monthly, weekly and daily*). Descriptive data were also reported for body typology perception as reported by frequency and means. One-way Analysis of Variance (ANOVA)

**Table 1. Demographic Data for Overall Sample (n=320)**

Variable	Reporting	
	Overall Frequency	Percentage
<i>Gender</i>		
Male	123	(39.9%)
Female	183	(59.4%)
<i>Age</i>		
Mean	20.98 yrs	
<i>Ethnic Background</i>		
African American	80	(26.1%)
Caucasian	216	(70.4%)
Other	7	(3.6%)
<i>Class Ranking</i>		
Freshmen	65	(21.2%)
Sophomores	96	(31.3%)
Juniors	86	(28.0%)
Seniors	58	(18.9%)
Graduates	2	(0.7%)

determined significant differences for: (1) key demographical variables and calculated Body Mass Index and (2) current and desired body type.

The primary purpose of this study sought to document disordered eating patterns and prevalence rates to assess the current extent of the problem. These data would be utilized to compare rates between this specific population and national averages. When asked about previously diagnosed illnesses, less than two percent (n=5, 1.65%) of the participants self-reported a positive previous diagnosis of bulimia, and the rates dropped for anorexia (n=3, 0.99%).

Behavioral assessment of disordered eating patterns indicated rates to be somewhat higher, yet still lower than the estimated national average. Disordered eating patterns included laxative use, diet pill usage, binge eating, induced vomiting, and fasting for more than 24 hours. Participant frequency parameters of disordered eating patterns were classified as: never, one to six times per year, monthly, weekly, and daily. Overall prevalence rate for those participants who never engaged in any of these behaviors is 85.7% (n=265), ranging from 81.2% (n=81.2%) per laxative use to 92.6% (n=286) for induced vomiting (see Table 2). Combining the last two columns, to report approximate behavioral eating patterns in the last 30 days, gave tabulated totals to compare to national averages. Laxative use among this population was reported as 81.2% never, 12.2% as 1-6 times per year, 4.9% monthly, and 1.2% weekly/daily. Diet pill usage among respondent was reported as 87.1% never, 5.6% at one to six times per year, 2.3% monthly, and 4.8% as weekly/daily. Binge eating behavior pattern was reported as never by 82.3% of the population, 9.1% stated they did binge eat one to six times per year, 5.2% as monthly, and 2.6% as weekly/daily. Induced vomiting recorded one of the lowest prevalence rates of all the eating disordered patterns. Almost 93% replied that they never used this behavior, 5.3% as one to six times per year, monthly rates were 1.0% and weekly/daily at 1.0%. Participants that reported fasting for more that 24 hours were 85.2% as never, 7.8% as one to six times per year, 2.6% monthly, and 4.2% as weekly/daily. Daily reported rates of behavioral eating patterns were: laxatives 0.6%, diet pills 2.5%, binge eating 0%, induced vomiting 0% and fasting 0.3%. Rank ordering of disordered eating patterns manifestations in the last 30 days determined a hierarchical system as: diet pills (4.8%, n=15),

fasting > 24 hrs (4.2%, n=13), binge eating (2.6%, n=8), laxative use (1.2%, n=4) and induced vomiting (1.0%, n=3). Although not part of the Disordered Eating Subscale, the researchers examined exercise

rates of this population. Almost 5% (n=15) of the respondents reported never exercising, while 64.7% (n=197) indicated a exercise rate of at least several times per week.

**Table 2. Descriptive statistical data of self-reported behaviors from the Disordered Eating Subscale**

Question	Never n (%)	1-6/yr. n (%)	Mthly n (%)	Wkly n (%)	Daily n (%)
<b>Laxatives</b>	251 (81.2)	39 (12.2)	15 (4.9)	2 (0.6)	2 (0.6%)
<b>Diet Pills</b>	270 (87.1)	18 (5.6)	7 (2.3)	7 (2.3)	8 (2.5)
<b>Binge Eating</b>	255 (82.3)	29 (9.1)	16 (5.2)	8 (2.6)	0 (0%)
<b>Induce Vomiting</b>	286 (92.6)	17 (5.3)	3 (1.0)	3 (1.0)	0 (0%)
<b>Fast &gt; 24 hrs.</b>	264 (85.2)	25 (7.8)	8 (2.6)	12 (3.9)	1 (0.3)
<b>Total Average</b>	<b>265 (85.7)</b>	<b>26 (8.0)</b>	<b>10 (3.2)</b>	<b>6 (2.1)</b>	<b>2 (0.7)</b>

In pictorial body type assessment, 92.6% (n=275) identified themselves within the normal body type range (as denoted by numbers two through six). Although there was an overall reported desire to lose weight (current  $x=3.28$ , desired 2.72), no statistically significant difference in current and desired body type was found ( $p=0.1066$ ). Sixty-seven percent (n=202) classified their current weight as about average or underweight. There is a positive correlation between body type perception and researcher calculated Body Mass Index ( $r=0.71$ ), indicating an accurate perception as perceived body type and actual body type.

Variations in Body Mass Index among key demographically determinants were reported by means. Average Body Mass Index means range from 20 to 25 kg/m<sup>2</sup>. One-way analysis of variance (ANOVA) was utilized to determined if significant differences existed between ethnicity, class ranking and gender. No significant differences were reported among race ( $p=0.1849$ ) or class ranking ( $p=0.4277$ ); all means in these groups were within the normal range. Statistically significant differences in BMI were found between males and females ( $p=0.003$ ), yet the means for both male (25.22 kg/m<sup>2</sup>) and females (23.14

kg/m<sup>2</sup>) were within the normal range and this variation was expected.

**Discussion and Conclusions**

The most glaring conclusion from the Disordered Eating Subscale is a noticeably small number of disordered eating patterns among this college population. The magnitude of projected problematic eating disorders among a population determined “at risk” by current knowledge were not found in this study (Schotte and Stunkark, 1987; Drownowski, Yee, and Krahn, 1988; Kessler, Gilham and Vickers, 1992; Hoek, et al., 1995; Bemporad, 1996, CDC 1997). Researchers would argue that due to a strong research methodology, the results of this study will be similar in other like institutions. There are no previous data about this specific population, thus it is difficult to determine if this is a decline in this behavior or if it is consistent with the region and specific population. Another result of the study was that the majority of participants’ body perceptions had a relationship to calculated BMI (i.e. selection of a silhouette figure that was one that was consistent or closely related to their actual body typology). Because

**Figure 1. Descriptive statistics report of body perception typologies (n=320).**

Body Perception	N	Frequency	Overall Mean
<i>Body Type Actual</i>			
1	21	7.1%	3.28
2	70	23.6%	
3	84	28.3%	
4	69	23.2%	
5	35	11.8%	
6	17	5.7%	
7	1	0.3%	
<i>Body Type Desired</i>			
1	23	7.5%	2.72
2	124	40.5%	
3	93	30.4%	
4	51	16.7%	
5	13	4.2%	
6	1	0.3%	
7	0	0.0%	
<i>Weight Self-Classification</i>			
Over-weight	100	33.1%	1.72
Average	187	61.9%	
Under-weight	15	5.0%	

Cohn, L & Adler, N. (1992). Female and male perception of ideal body shapes, *Psychology of Women Quarterly*, 16, 69-79.

**Table 3. Statistical Significance of Differences Among Body Mass Index and Demographical Variables.**

Source of Variation	One-way Analysis of Variance		
	BMI (kg/m <sup>2</sup> )	F	Prob> F
<i>Ethnicity</i>			
African American	24.79		
Asian/Pacific Islander	28.99		
Hispanic American	22.46	1.56	0.1849
Caucasian	23.68		
Other	22.90		
<i>Class Ranking</i>			
Freshman	23.46		
Sophomore	23.73		
Junior	24.10	0.96	0.4277
Senior	24.82		
<i>Gender</i>			
Male	25.22		
Female	23.14	13.69	0.003*

\*p<.05, yet both within “average” range

Note: Range for BMI numbers:

<19 underweight

20-25 average

26-27 moderately overweight

> 27 overweight

McArdele, W.D., Katch, F.I. & Katch, V.L. (1991). *Exercise Physiology*. Philadelphia, PA: Lea & Febiger Publishers.

a large percentage of the sample was Black American, differences between ethnicity concerning BMI measurements and disordered eating patterns were examined; however, no significant differences were found. Likewise, there were no significant differences determined between class ranking with regards to BMI levels. These results run contrary to existing research and researchers must ask if current projections and prevalence rates of disordered eating patterns are correct. Although not part of the Disordered Eating Subscale, the researchers examined and analyzed exercise patterns of the participants. Rates were higher than national estimates that 37.6% of college students exercise more than 3 times per week (Centers for Disease Control & Prevention, 1997). Compulsive exercising was considered a concern given the high exercise rates; however, because of the data revealing correlated body perceptions and calculated BMI rates of acceptable range, it was discounted by the researchers. A hypothesis generated by the study is that eating disorders and negative body image perceptions only effect a very small, select group within the general population.

There were several methodological limitations to this study. For example, a possible threat to the validity of the findings was the reliance on self-reported behaviors and anthropological measurements. Participant reactivity might have been introduced into the study. Replication of this study could include complimenting the self-reported data with interviews and physical examinations. Another possible limitation to this study was the absence of questions regarding extracurricular activities (i.e. sororities, intercollegiate athletics). Such questions were not included in the instrument given its extensive length; however, they may have illuminated the current, albeit limited, disordered eating occurring at this particular university. Although continuing to increase the general awareness about eating disorders is important, once the disordered eating populations are more clearly identified through subsequent, focused studies; creating educational and interventions that target those populations should be considered as a better use of limited resources. In addition, the survey revealed that many individuals had an accurate perception of their body size. This might be a result of effective positive body acceptance programming on campus. Continued like programming which reinforces positive body concepts should be considered.

This research suggests that eating disorders among college populations is much lower than what has been documented through literature. If these study results are replicated at other like institutions throughout the United States, then health education and nutrition professionals have been successful in lowering the overall incidence rate of eating disorders and/or these problems have shifted to a different population. Important programmatic decisions and resource allocations for health educational efforts are based upon prevalence studies. Future studies should seek to verify these results and make recommendations based on the findings. Eating disorders prevalence rates should be documented among high-school students and pre-teens. Appropriate health education interventions need be aligned with all populations that are determined to be "at risk".

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